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Attorney Docket No. MR1035-1282

### REMARKS / ARGUMENTS

This Amendments and Response to Office Action is filed in response to the Office Action of September 9, 2004.

Claims 1-3, 5, 6 and 8 stand rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,639,360 issued to Robert ("Robert") in view of U.S. Patent No. 6,340,824 issued to Komoto *et al.* ("Komoto"). Claims 9-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Robert in view of Komoto and further in view of U.S. Patent No. 6,274,978 issued to Roach *et al.* ("Roach "). Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Robert in view of Komoto and further in view of CN 1425621A of Yang *et al.* ("Yang"). Claims 1-3, 5, 7 and 9-11 also stand rejected under 35 U.S.C. 103(a) as being unpatentable over US 2004/0027512A1 Kubomura *et al.* ("Kubomura"), in view of U.S. Patent No. 6,550,942 of Zou *et al.* ("Zou"), further in view of U.S. Patent No. 6,655,810 issued to Hayashi *et al.* ("Hayashi"), further in view of U.S. Patent No. 6,705,911 issued to Lee *et al.* ("Lee"). Claim 6 also stands rejected under 35 U.S.C. 103(a) as being unpatentable over Kubomura in view of Zou, further in view of Hayashi, further in view of Lee and further in view of U.S. Patent No. 6,505,948 issued to Cekic *et al.* ("Cekic").

With entry of the above amendments and consideration of the reasons stated below, Applicant respectfully submits that the objections and rejections set forth in the outstanding Office Action are overcome.

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**I. Rejection of Claims 1-3, 5, 6 and 8 under 35 U.S.C. 103(a) in view of Robert and the Komoto**

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skills in the art, to modify the references or to combine reference teachings. Second, there must be a reasonable expectation of success to combine the teachings of the references. Finally, the prior art reference (or references when combined) must teach or suggest all the claim elements. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art references and not based on applicant's disclosure. See MPEP §706.02(j).

Claim 1 and its associated dependent claims 2, 3, 5, 6, and 8 currently stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Robert in view of Komoto. In light of the claim amendments made herein and the reasons stated *supra*, Applicant respectfully traverses the anticipation rejection because the combination of Robert and Komoto fails to disclose each and every element of the claims.

The subject application is directed to provide a high-brightness flat lamp with fluorescent powder coated on a transparent substrate thereof so as to avoid burned black at the electrodes of conventional CCFFL after a longtime use and thus solve the problem of low light emission efficiency. Therefore, according to one preferred embodiment of the subject application, the UV light source in the subject application is preferably a phosphor-free UV light tube emitting UV light by gas discharge. Moreover, the fluorescent powder is coated on a transparent substrate opposite to the UV light source and non-coplanar with the cavity-shaped reflecting plate 1. This simplifies the manufacturing process and coating of the fluorescent powder on the

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inner wall of the UV light tube thereof is no longer necessary. Burned black on the UV light tube as they occur on the electrodes of conventional CCFFL after a longtime use can also be avoided.

Robert discloses a high power radiation emitter device and heat-dissipating package for electronic component. As shown in Fig. 3A through Fig. 6B of the Robert patent, the light source is a photoluminescent emitter or LED, both generate considerable heat during operation. To overcome the heat problem, Robert discloses a package with liquid or gel contained in a sealed chamber and an optional Peltier type cooling structure with a Peltier cooler 33, heat sink 35, and/or fan 37 attached to the backside of first substrate 14. The photoluminescent emitter or LED, unlike a UV tube with a rounded face, mainly emits light in the forward direction. Therefore, the seal 18 does not reflect light.

Komoto disclosed a semiconductor light emitting device using a fluorescent material. In the various embodiments shown in Fig. 1 through Fig. 140, the light is provided by light emitting diodes (LEDs). More particularly, Komoto explicitly states, in lines 49-53 of col. 58, "[a]ccording to the invention, since the semiconductor light emitting element is used as the light source, the photoelectric conversion efficiency is higher than those of conventional cathode fluorescent tubes, and the power consumption can be reduced." Komoto fails to teach using cathode fluorescent tube as a light source. Additionally, the light source in the amended claim 1 of the subject application is a UV light tube. No phosphor is used in the light source in the amended claim 1 of the subject application. A conventional cathode fluorescent tube will not emit UV light because a phosphor layer is coated thereon for wavelength conversion. For at least this reason, the UV light tube in the subject application is also different from a conventional cathode fluorescent tube.

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Therefore, the combination of Robert and Komoto fails to teach the features of the subject application as claimed in claim 1: having a cavity formed therein, said cavity having a longitudinally extended bottom wall bounded by a plurality of sidewalls with titanium dioxide and a macromolecular polymer coated thereon, and wherein the UV light source in step (a) is a UV light tube for emitting UV light.

By virtue of their respective dependency upon claim 1, dependent claims 2-3, 5, 6 and 8 also patently define over the prior art references.

## **II. Rejection of Claims 9-15 as under 35 U.S.C. 103(a)**

By virtue of their respective dependency upon claim 1, it is believed that dependent claims 9-15 also patently define over the prior art references.

## **III. Rejection of Claims 1-3, 5, 7 and 9-11 under 35 U.S.C. 103(a) in view of Kubomura, Zou, Hayashi and Lee.**

Kubomura discloses a lighting unit for a liquid crystal display device, which uses a light source with suppressed UV amount to prevent the degradation of transparent resin. *See* Kubomura paragraph 0025, "[n]othing but to give out visible light rays is imposed on the light source used for the illumination unit of the present invention." Moreover, the emitted amount and spectral regime of the UV light from the light source has limitations. *See* Kubomura paragraph 0028, "[i]n the present invention, it is preferable to use a fluorescent discharge tube in which ultraviolet rays in the wavelength range inclusive of 254-nm and 313-nm wavelengths are reduced from light rays leaving the light source. More specifically in the present invention, it is desired to use a light source in which the maximum emission intensity in the ultraviolet range of

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350 nm or less is  $2\mu\text{W}/(\text{cm}^2 \cdot \text{nm})$  or less." In other words, phosphor needs to be coated on the inner wall of a light source if the light source is a fluorescent discharge tube. Accordingly, the light source in the Kubomura patent is by no means the same "UV light source" as in the subject application.

Zou disclose a linear illumination source and system, wherein an opening 408 is defined on a reflective enclosure 404. The light emitted from the linear light source 402 is prone to have multiple reflections by the reflective enclosure 404 before leaving the opening 408. The Zou patent is intended to provide a linear light source to reduce leakage from the reflective enclosure 404. Therefore, the linear light source 402, unlike the light source in the present invention, is also an ordinary fluorescent discharge tube with phosphor coated on the inner wall thereof. The teaching of Kubomura and Zou also cannot be combined because they teach planar lighting and edge lighting, respectively, two very different types of lighting.

Hayashi discloses a lighting unit using a liquid to index-match between the light source and the waveguide, which again has a different purpose and is a different lighting from those light units of Kubomura and Zou. Lee discloses a flat fluorescent lamp with a slurry containing at least 40% phosphor by weight and a specific amount of organic binder to form a thick fluorescent layer. Moreover, a discharge gas is injected between the front plate 11 and the back plate 12. Therefore, Lee teaches a method to coat a fluorescent layer with sufficient thickness for a flat fluorescent lamp. The flat fluorescent lamp taught by Lee still comprises a fluorescent layer 13 inside the lamp walls (the front plate 11 and the back plate 12 for containing the discharge gas therein), which is contrary to the teaching of the subject application. Accordingly, it is arguable whether the four prior arts are combinable and the combination thereof can cover all features of the subject application.

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Also, when the motivation to combine the teachings of the references is not immediately apparent, it is the duty of the examiner to explain why the combination of the teaching is proper. *See* MPEP 2143.01. Applicant respectfully submits that there is no motivation to combine the four references. Therefore, the withdrawal of the rejection on claim 1 and associated dependent claims-2, 3, 5, 7 and 9-11 is respectfully requested.

#### IV. Rejection of Claim 6 as under 35 U.S.C. 103(a)

By virtue of its dependency upon claim 1, dependent claim 6 also patentably defines over the prior art references.

#### V. Addition of New Claims 16-17

New claims 16-17 are added to cover additional scope of the invention without introduction of new matters. Consideration and allowance of these claims are respectfully requested.

### CONCLUSION

For at least the foregoing reasons, it is believed that all of pending claims 1-3 and 5-17 of the present application patentably define over the prior art references and are in proper condition for allowance. Because this filing is submitted one month after the three-month shortened statutory period, a petition for a one-month extension is hereby submitted. Furthermore, because there are two independent claims and a total sixteen claims as submitted in this Amendments and Response, no additional fees are required. In the event, however, that

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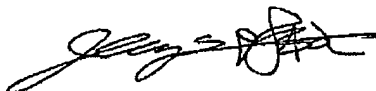
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additional fees are required to complete this filing, Commissioner is authorized to deduct any deficiencies from Deposit Account 02-0393, Attorney Docket No. MR1035-1282.

If the Examiner has any questions regarding this filing or the application in general, Examiner is invited to contact Applicant's attorney at the below-listed telephone number.

Respectfully submitted,



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